

22. An integrated combined battery and wireless-recharging apparatus comprising:

a support structure;

a first conductive layer deposited on a first surface area of the support structure;

a thin-film battery comprising a cathode layer; a solid-state electrolyte layer, and an anode layer deposited such that either the anode layer or the cathode layer is in electrical contact with the first conductive layer, and the electrolyte layer in contact with and completely separating the anode layer and the cathode layer;

an energy-receiving device mounted to the support structure; and

an electronic communications circuit mounted to the support structure and including a recharging circuit, the recharging circuit electrically coupled to the battery and the energy-receiving device to recharge the battery using energy received by the energy-receiving device.

23. The apparatus according to claim 22, wherein the anode or the cathode or both include an intercalation material or a metal or both, and wherein the electrolyte layer comprises LiPON.

24. The apparatus according to claim 22, wherein the cathode layer comprises lithium cobalt oxide deposited on the first conductive layer, and wherein the electrolyte layer comprises LiPON.

25. The apparatus according to claim 22, wherein the energy-receiving device comprises a photovoltaic cell.

26. The apparatus according to claim 22, wherein the energy-receiving device comprises an antenna.

27. The apparatus according to claim 22, wherein the energy-receiving device comprises an electromechanical electric generator.

28. The apparatus according to claim 22, wherein the energy-receiving device comprises an acoustic transducer.

29. The apparatus according to claim 22, further comprising a magnetic transducer.

30. The apparatus according to claim 22, further comprising an acoustic transducer.

31. The apparatus according to claim 22, wherein the apparatus operates as a hearing aid.

32. The apparatus according to claim 22, wherein the apparatus operates as an implantable medical device.

33. The apparatus according to claim 22, wherein the apparatus operates as a timepiece.

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